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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/040,804	11/08/2001	Masao Yasuda	56677 (70551)	2892

7590 07/31/2002

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EXAMINER

NORRIS, JEREMY C

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 07/31/2002

5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/040,804

Applicant(s)

YASUDA ET AL.

Examiner

Jeremy Norris

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 8 November 2000. It is noted, however, that applicant has not filed a certified copy of the patent application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1-5 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,418,029, granted to McKee et al. (hereafter McKee).

McKee discloses, referring to figures 1-3, an electronic component (chip carrier 10) including, on electrodes (30), a plurality of connection materials connected to another electronic component, said connection materials including a composite connection material formed of a core (50) and a conductor (55, 56) covering said core, said core having an a low modulus of elasticity at room temperature smaller than an a low modulus of elasticity of said conductor at room temperature, and a single-layer connection material (40) formed of a conductor [claim 1], wherein said composite

connection material is placed on an electrode among electrodes arranged in an electrode region of said electronic component, said electrode being located in an area where a relatively greater stress is likely to be exerted than a stress exerted on another area of the electrode region (the corners as in figure 1), and said single-layer connection material is placed on an electrode in said another area (the interior) [claims 2, 3], wherein the ratio in number of said composite connection material to all connection materials is from 10 % to 90 % [claims 4, 5]

Additionally, McKee discloses, referring to figures 1-3, a mounting structure for mounting a semiconductor device (chip carrier 10), that is connected to a substrate (main PCB, see col. 3, lines 40-45) via a plurality of connection materials, wherein said plurality of connection materials are constituted of a first type of connection material formed of a core (50) and a conductor (55, 56) covering said core and a second type of connection material (40) formed of a conductor [claim 8].

Claims 6, 7, and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,337,445, granted to Abbott et al. (hereafter Abbott).

Abbott discloses, referring to figures 7, 8, a method of mounting a semiconductor device (804) on a substrate (820), said semiconductor device including, on an electrode (806), a composite connection material (805) formed of a core (801) and a conductor (803) covering said core, said method comprising the steps of: forming an auxiliary connection part (818) in contact with the upper side of an electrode of said substrate, said auxiliary connection part being formed of a low melting-point conductor having a

melting point of at most a melting point of said conductor covering said core; and matching respective positions of said auxiliary connection part and said composite connection material to bring into contact said auxiliary connection part and said composite connection material, and heating to connect said auxiliary connection part and said composite connection material [claim 6], wherein said auxiliary connection part on the electrode of said substrate is greater in volume than said conductor of said composite connection material on the electrode of said semiconductor device [claim 7].

Furthermore, Abbott discloses, referring to figures 7, 8, a mounting structure for mounting a semiconductor device (804), that is connected to a substrate (802) via a composite connection material (805) formed of a core (801) and a conductor (803) covering said core, wherein said composite connection material has a substrate contact portion (818) contacting said substrate and an electrode contact portion (808) contacting an electrode of said semiconductor device, and melting point of said substrate contact portion is lower than that of said electrode contact portion [claim 9].

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following documents disclose connector structures:

US 5,147,084	Behun et al.,
US 5,657,207	Schreiber et al.,
US 5,744,759	Ameen et al.,
US 5,790,377	Schreiber et al.,
US 5,956,605	Akram et al.,

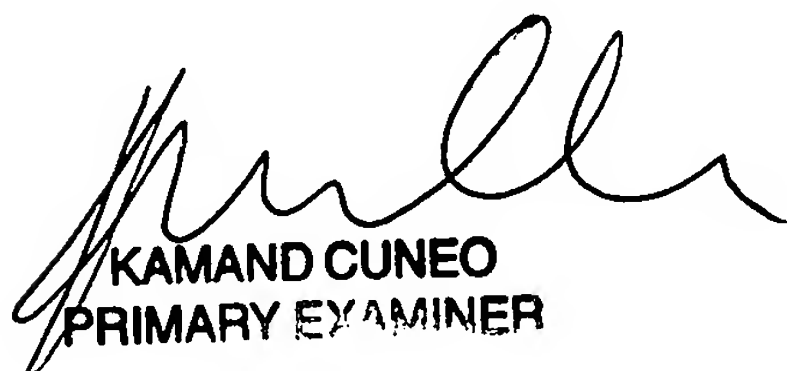
US 6,172,879 Cilia et al..

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy Norris whose telephone number is 703-306-5737. The examiner can normally be reached on Mon.-Th., 9AM - 6:30 PM and alt. Fri. 9AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7724 for regular communications and 703-305-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JCSN
July 26, 2002



KAMAND CUNEO
PRIMARY EXAMINER